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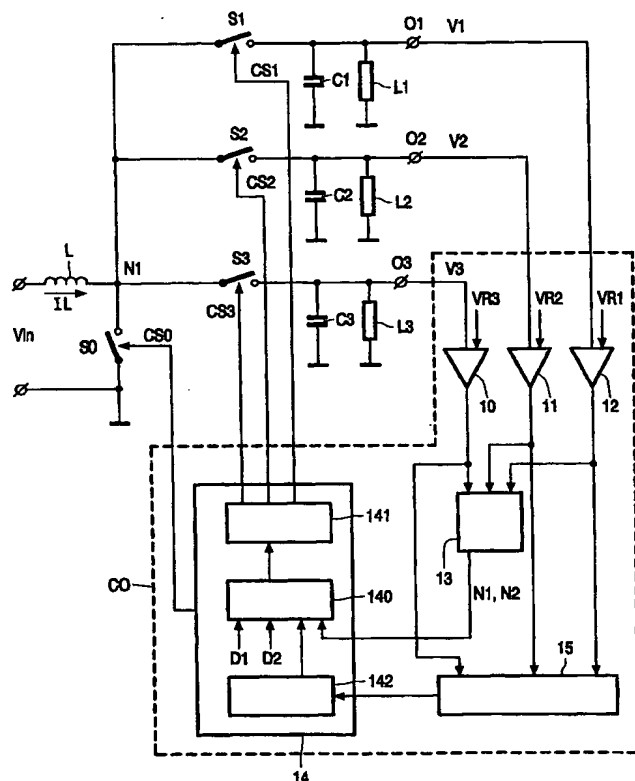
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(54) Title: A MULTIPLE-OUTPUT DC-DC CONVERTER



(57) **Abstract:** The multiple-output DC-DC converter comprises an inductor (L) and a main switch (S0) which periodically couples a DC-input voltage (Vin) to the inductor (L). Each one of a multitude of loads (L1, L2, L3) is coupled to the inductor (L) via one of a multitude of output switches (S1, S2, S3). One of a multitude of output voltages (V1, V2, V3) is present across each of the loads (L1, L2, L3). A controller (CO) controls the main switch (S0) and the output switches (S1, S2, S3) in sequences (SE) of cycles (CY). Each one of the cycles (CY1, CY2, CY3) contains an on-phase of the main switch (S0) followed by an on-phase of one of the multitude of output switches (S1, S2, S3). The cycles (CY1, CY2, CY3) have either a predetermined first (minimum) duty cycle (D1) or a second (maximum) duty cycle (D2) which is larger than the first duty cycle (D1). The controller (CO) comprises a multitude of comparators (10, 11, 12) which each compare one of the multitude of output voltages (V1, V2, V3) with an associated one of a multitude of reference voltages (VR1, VR2, VR3). The controller (CO) further checks whether the number of the multitude of output voltages (V1, V2, V3) which have a value above their associated reference voltage (VR1, VR2, VR3) is larger than, smaller than, or equal to the number of the multitude of output voltages (V1, V2, V3) which have a value below their associated reference voltage (VR1, VR2, VR3). The duty cycles are selected such that the number of cycles (CY1, CY2, CY3) with the minimal duty cycle (D1) are larger than, smaller than, or equal to the number of cycles with the maximum duty cycle (D2), respectively.